

U.S. Patent Application Serial No. 10/519,410
Amendment filed December 11, 2007
Reply to OA dated September 12, 2007

REMARKS

Claims 1-15 are pending in this application. Claims 3, 5, 6, 12, 13 and 15 are canceled without prejudice or disclaimer, claims 1, 2, 4 and 7-11 are amended herein. Upon entry of this amendment, claims 1, 2, 4, 7-11 and 14 will be pending. Entry of this amendment and reconsideration of the rejections are respectfully requested.

No new matter has been introduced by this Amendment. Support for the amendments to the claims is discussed below.

Claims 1-8, 10 and 12-15 are rejected under 35 U.S.C. §103(a) as being unpatentable over Terada (U.S. Patent No. 6,326,440) in view of Obuchi (JP 2001-049098). (Office action paragraph no. 2)

The Examiner cites Terada for disclosing films comprising polylactic acid and a polyester at a ratio of 80:20 to 20:80, and cites Terada for disclosing that the polyester preferably has Tg of not higher than 0 °C (column 5, lines 15-17). The Examiner states that Terada discloses a thickness of 40 micrometers (column 8, line 66), and does not disclose the 100 to 500 μm limitation of claim 1.

The Examiner cites Obuchi JP '098 for disclosing compositions comprising polyesters and polylactic acid and disclosing films of thickness of 5-1000 μm . The Examiner states that it would have been obvious to make Terada's films as 5-1000 μm , which would overlap the range in claim

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1. The Examiner also states that the limitation of claim 1 that the degree of crystallization of the polylactic acid resin is 45% or less would be inherent.

The rejection is overcome by the amendments to the claims.

In claims 1, 2, 8, 9 and 10, the value of "45%" has been amended to -- 20% -- . Support for this limitation may be found in original claim 3 and in the specification on page 16, line 22.

Claims 7 and 11 have been amended to recite: "the molded article is a deep-drawn molded article having a draw ratio of 0.5 or more." Support for this amendment may be found on page 16, line 20, to page 17, line 7, of the specification. The wording of claims 7 and 8 has also been amended to clarify that it is the "molded article" that has the recited volume reduction ratio of 6% or less.

(1) Regarding the Degree of Crystallization of 20% or less

As noted above, claims 1, 2, 8, 9 and 10 have been amended to recite this limitation, and this limitation is therefore present in claims 1, 2, 4, 8, 9, 10 and 14.

Obuchi (JP 2001-049098) does not disclose a film having the degree of crystallization of 20% or less. For example, the film of Example 1 of the reference is drawn and heat-treated to improve a degree of crystallization and the obtained film has the degree of crystallization of 25% [0099]. Table 1 and Table 2 show that films of Examples 1 to 10 have the degree of crystallization of 25% to 30%.

According to the present invention, by controlling the degree of crystallization of the polylactic acid resin of 20% or less, even if deep-drawn molded article having a draw ratio of 0.5 or more or blister molded article having a complicated shape is formed by vacuum forming, formability is good and a good molded article can be obtained. In Table 1, Examples 1 to 7 having a crystallization of 20% or less show the better evaluation of moldability than that of Example 8 having a crystallization of 43%, which explains that the lower degree of crystallization of the polylactic acid resin realizes better moldability. Applicant submits that this effect associated with the 20% or less limitation is unexpected over Obuchi et al. '098.

- (2) Regarding the Deep-drawn molded article having a draw ratio of 0.5 or more

As noted above, claim 7 has been amended to recite this limitation.

The specification states on page 37, line 25, to page 38, line 9:

“Table 2 indicates that when the draw ratio was 0.5, the sheet of Example 1 showed excellent moldability and the sheet of Example 8 showed good moldability. That is, the biodegradable sheets of Examples 1 to 8 of the present invention gave molded articles so far as the draw ratio was 0.5, and even when the draw ratio was 1.33, molded articles on a practically usable level could be obtained. Of course, excellent molded article could be obtained when the draw ratio was less than 0.5.”

Table 1 on page 33 of this specification shows that Examples 1 to 7 having a crystallization of 20% or less are excellent in moldability (see page 37, lines 6-9). Moreover, Table 2 indicates the results of the evaluation for moldability (2) of molded articles of Examples 1 and 8. Table 2 shows

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that Example 1 has improved moldability compared with that of Example 8. Applicant submits that this effect is unexpected over the cited references.

Applicant therefore submits that pending claims 1, 2, 4, 7, 8, 10 and 14, as amended, are not obvious over Terada (U.S. Patent No. 6,326,440) and Obuchi (JP 2001-049098), taken separately or in combination.

Claims 9 and 11 are rejected under 35 U.S.C. §103(a) as being unpatentable over Terada and Obuchi in further view of Obuchi (US 2002/0002252). (Office action paragraph no. 3)

The rejection is overcome by the amendments to the claims. Claim 9 has been amended to limit the degree of crystallization to “20% or less.” Claim 11 has been amended to recite “wherein the molded article is a deep-drawn molded article having a draw ratio of 0.5 or more.”

As discussed above, Applicant submits that these limitations are not disclosed in Terada '440 or Obuchi '098, and that the pending claims are not obvious over these references.

In addition, Obuchi (US 2002/0002252) discloses no film having the degree of crystallization of 20% or less. For example, films of Examples 1-1 to 1-9 are heat-treated under conditions shown in Table 1 to improve crystallinity [0119]. Tables 1-3 show that films of Examples 1-1 to 3-31 have the degree of crystallization of 26.5% to 46%.

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Applicant submits that there is no suggestion in the cited references for the limitations of amended claims 9 and 11, and that these references are not obvious over Terada '440, Obuchi '098 and Obuchi '252, taken separately or in combination.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact the applicant's undersigned agent at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed, the applicant respectfully petitions for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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